

Appendix 1: Asthma Triggers

Table 1: Asthma Triggers and Steps to Reduce Exposure

Trigger and Sources of Exposure	Steps to Reduce Exposure
Irritants	
Viral and Bacterial Infections <ul style="list-style-type: none"> • Colds and flu • Sinusitis 	The best preventive action to avoid viruses and bacteria is frequent hand washing with soap and water. Local health units can provide resources to help with promoting routine hand washing practices. The flu shot is recommended for everyone over the age of six months. Flu shots are even more important for students with asthma as they are a high-risk group.
Tobacco smoke <ul style="list-style-type: none"> • Secondhand smoke is a well-known asthma trigger and may also contribute to the development of asthma in infants. • Thirdhand smoke (i.e., tobacco smoke remaining on the hair, clothing, and body of smokers) can trigger asthma symptoms. 	Schools should be a smoke free environment. Students should not be exposed to tobacco smoke.
Air pollution <ul style="list-style-type: none"> • Any activity that increases the rate of breathing will increase the exposure to pollutants during poor air quality days. This increased exposure is more likely to cause symptoms and worsen asthma. • Exposure to poor air quality occurs during outdoor sports and recreation activities. Activities that increase the rate of breathing include cycling any running based activity such as soccer, box lacrosse, ultimate frisbee, tennis, and football. 	Check air quality forecasts and smog alerts at www.airqualityontario.com and www.airhealth.ca . In general consider modifying plans for outdoor physical activity if the Air Quality Health Index (AQHI) is between four and ten for students with asthma or between seven and ten for the general population. Move planned outdoor activities to well-ventilated indoor sites if air quality is poor. Schools should consider developing policies related to idle-free zones.
Physical activity <ul style="list-style-type: none"> • Strenuous activities that are aerobic are more likely to cause exercise induced asthma. Examples of physical activities most likely to trigger asthma include: running, lacrosse, soccer, football, basketball, hockey, field hockey, ultimate Frisbee, and tennis. 	The risk of exercise-induced asthma symptoms can be reduced by keeping asthma well controlled. Sometimes a reliever inhaler is prescribed to be taken 10 to 15 minutes before the activity is started.

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Irritants	
Extremes in weather <ul style="list-style-type: none"> Breathing cold air can make the airways narrow and cause asthma symptoms. Performing vigorous activity in extremes in weather is more likely to be problematic, especially cold and windy environments. 	<p>During cold weather, encourage students with asthma to cover their face with a scarf or facemask to help warm and humidify the air.</p> <p>Air conditioning and fans are helpful for hot and humid days.</p>
Strong Odours <ul style="list-style-type: none"> Art supplies Cleaning supplies containing bleach or ammonia Scented products (e.g., perfume, cologne, and aftershave) Paint fumes 	<p>Art supplies that release strong odours (i.e., chemicals) should be avoided, including acrylic glues, rubber cement, liquid ink, spray adhesives, markers (e.g., dry erase, scented, permanent) and oil-based and spray paint.</p> <p>Paint fumes should be avoided. Painting of the school should be completed during breaks. Proper ventilation is important. Notify parents/guardians of plans for indoor painting during the school year. Cleaning supplies and scented products that are environmentally friendly and low scent/odour products are recommended. Schools should consider developing policies related to scent-reduced zones and or fragrance-free or scent-free schools.</p>
Allergens	
House Dust Mites <ul style="list-style-type: none"> Tiny insects that feed on dead skin cells that are found in the fibres of stuffed chairs, pillows, carpets and gym mats. 	<ul style="list-style-type: none"> Remove carpets, stuffed chairs, upholstered furniture and pillows. Frequently damp-dust and vacuum daily (use a vacuum with a high-efficiency particulate air (HEPA) filter). Cleaning should occur after students have left for the day.
Mould <ul style="list-style-type: none"> Spores from mould can become airborne and trigger asthma. Black spots or white crumbles around windows or on the ceiling are common signs of mould. High indoor humidity promotes the growth of mould and dust mites. Exposure to moulds often occurs in indoor arenas and can be more problematic during physical activity, such as hockey, lacrosse, basketball, dance, volleyball. 	<ul style="list-style-type: none"> Keep indoor humidity less than 50 percent. Humidity can be measured by a hygrometer, available at hardware stores. Dehumidifiers also help to reduce humidity levels. Report leaks and water-damaged material to environmental services. Remove water-damaged materials (carpet, carpet padding, ceiling tiles, etc.). Repair leaks and promote air circulation. Aquariums and humidifiers require regular cleaning and are not encouraged because of the possibility of mould growing in/around them. Outdoor mould can be found in freshly cut grass and decaying leaves. They are most common in the spring, summer and fall, until after the first frost. For additional strategies related to indoor air quality, consult Health Canada's Indoor Air Quality — Tools for Schools Action Kit for Canadian Schools at http://www.hc-sc.gc.ca/ewh-semt/pubs/air/tools_school-outils_ecoles/index-eng.php.

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Allergens	
Pollen <ul style="list-style-type: none"> • Pollen is in the air from May through September. Pollen counts are highest on sunny, dry, windy days. • Any physical activity performed during high pollen count days will increase the person's exposure and is more likely to cause asthma symptoms. 	<ul style="list-style-type: none"> • Keep windows closed on high pollen days. • Monitor pollen counts on your local weather station or go to www.theweathernetwork.ca.
Pests (mice, rats, cockroaches)	<ul style="list-style-type: none"> • Schools should consider developing pet-free zones. • Clean up all food particles. • Follow integrated pest management system guidelines found at: www.epa.gov/opp00001/ipm.
Food and Food Additives <ul style="list-style-type: none"> • Allergies to food and food additives can trigger asthma flare-ups or worsen asthma, although this is rare. • Allergies can develop to any food or food additive. The most common food allergies include peanuts, nuts, sesame seeds, milk, shellfish, fish and eggs. Common allergies to food additives include food preservatives (such as monosodium glutamate and sulphites) and food colourings. • A severe food or food additive allergy is known as anaphylaxis. • People with asthma and anaphylaxis are at greater risk of dying. 	<ul style="list-style-type: none"> • Know the food and food additives student is allergic to and the typical response and severity. • As part of Sabrina's Law in Ontario, school boards are required to have an individualized plan for students with life threatening or anaphylactic reactions, which are the most common for food allergies. • The best preventative step is for the student to avoid exposure to his/her allergen. Strategies used in schools to avoid exposure to food and food additive allergies often vary according to grade level. • Anaphylaxis Canada has an easy to use and thorough website to guide and support educators in supporting students with food and food additive allergies, which can be accessed at www.anaphylaxis.ca

